United States Environmental Protection Agency, Region 5
Air Programs Branch
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

STATEMENT OF BASIS
Air Pollution Control
Title V Permit to Operate

Permit No. V-IL-1716300103-08-01
Significant Modification

November 2012

The purpose of this document is to set forth the legal and factual bases for permit conditions, including references to applicable provisions of the Clean Air Act (CAA or Act) and implementing regulations. This document also gives the derivation of conditions as required by 40 C.F.R. § 71.11(b).

CONTENTS

1.0. GENERAL INFORMATION

(A) Applicant and Stationary Source Information

Owner:	Veolia ES, Technical Solutions L.L.C.
Facility Name & Address:	Veolia Environmental Services 7 Mobile Avenue Sauget, Illinois 62201
SIC Code:	4953
Responsible Official & Mailing Address:	Doug Harris 7 Mobile Avenue Sauget, Illinois 62201 Telephone: (618) 271-2804
Facility Contact:	Dennis Warchol, (618) 271-2804

(B) Facility Description

Veolia Environmental Services Technical Solutions, L.L.C. (Veolia or Permittee) owns and operates a hazardous waste incinerator in Sauget, St. Clair County, Illinois. Veolia's Sauget facility is a treatment, storage and disposal facility, which accepts offsite waste for further disposal through incineration. Containers and bulk shipments of hazardous and solid wastes are received, analyzed and transferred to temporary storage facilities, processed and incinerated in one of three combustion units. The facility includes two fixed-hearth, dual chamber, multi-type feed incinerators (Combustion Units 2 and 3), each rated at 16 million British thermal units per hour (mmBtu/hr), and one rotary kiln incinerator (Combustion Unit 4), rated at 50 mmBtu/hr. Combustion Units 2 and 3 each use spray dry absorbers with lime slurry injection to control hydrogen chloride (HCl) emissions and baghouses for particulate matter (PM). Combustion Unit 4 uses a spray dry absorber for HCl control, an activated carbon injection system for mercury (Hg) control, and a baghouse for PM control.

Veolia's Sauget facility is operating under a Title V permit that EPA issued on September 12, 2008, pursuant to 40 C.F.R. Part 71.

(C) Area Classification

St. Clair County, Illinois is designated as a moderate nonattainment area for the 8-hour ozone National Ambient Air Quality Standard (NAAQS). It is also designated as a nonattainment area

for the 1997 annual NAAQS for particulate matter less than 2.5 micrograms ($PM_{2.5}$).[1] St. Clair County is in attainment with NAAQS for all other criteria pollutants.

(D) Basis for Title V Applicability

Veolia requires a Title V permit because it is a major source of hazardous air pollutant (HAP) emissions and because it is subject to the requirements established under 40 C.F.R. Part 63, Subpart EEE, "National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors" (HWC MACT).

The current permitting action is a significant modification to Veolia's existing Title V operating permit to add feedrate limits for certain heavy metals. The heavy metals include mercury, semivolatile metals (cadmium and lead), and low volatile metals (arsenic, beryllium, and chromium). EPA is modifying Veolia's Title V permit pursuant to the significant modification procedures of 40 C.F.R. § 71.7(e)(3).

(E) Enforcement Issues and Permit Shield

On June 12, 2008, the U.S. Environmental Protection Agency issued a Finding of Violation (FOV) to Veolia notifying the company that the Agency found it to be in violation of the CAA and the HWC MACT, 40 C.F.R. Part 63, Subpart EEE (64 Fed. Reg. 53038). On August 24, 2012, after further investigation into Veolia's compliance with the HWC MACT, EPA issued another FOV to Veolia notifying Veolia that the Agency found it to be in violation of the CAA and the HWC MACT.

EPA's regulations at 40 C.F.R. Part 71 allow permitting authorities the discretion to include a provision in the permit stating that compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, which is commonly referred to as a "permit shield". (*See* 40 C.F.R. § 71.6(f).) Because a resolution of the allegations discussed above and any additional allegations identified as a result of the ongoing investigation may result in incorporation into the permit of a compliance schedule to bring this facility into compliance, EPA has determined that it is not appropriate at this time to grant a permit shield for the applicable requirements of the HWC MACT standard, including those portions of the general provisions of Part 63 applicable to the source as a result of the applicability of 40 C.F.R. Part 63, Subpart EEE. EPA intends to reconsider whether a permit shield for these provisions is appropriate when EPA revises the permit, if necessary, to incorporate changes pursuant to the settlement of the enforcement action, and may provide a full permit shield at that time.

[1] On May 23, 2011, EPA took final action determining that the Saint Louis $PM_{2.5}$ nonattainment area in Illinois and Missouri has attained the 1997 annual $PM_{2.5}$ NAAQS, based upon quality-assured, quality-controlled, and certified ambient air monitoring data for the 2007–2009 monitoring period. This final determination suspends the States' obligation to submit a number of plans for this area **but is not** equivalent to redesignating the area to attainment. The designation of the area will remain nonattainment for the 1997 annual $PM_{2.5}$ NAAQS until such time as EPA determines that this area meets the Clean Air Act requirements for redesignation to attainment. *See* 76 Fed. Reg. 29652.

In addition, EPA notes that 40 C.F.R. § 71.6(f)(3) expressly provides that nothing in any Part 71 permit shall alter or affect the following:

(i) The provisions of section 303 of the Act (emergency orders), including the authority of the Administrator under that section;

(ii) The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;

(iii) The applicable requirements of the acid rain program, consistent with section 408(a) of the Act; or

(iv) The ability of EPA to obtain information from a source pursuant to section 114 of the Act.

EPA may reopen the permit to add or modify permit terms and conditions if EPA determines that additional measures are necessary to assure compliance. (*See* permit conditions 4.0 (J), (K), (L), (M), and (N).)

(F) Permitting History

(a) New Source Review (NSR) Permits

The Illinois Environmental Protection Agency (IEPA) has issued the following construction permits to this source:

Permit #	Date Issued
00110030	2/6/01
95080025	8/11/95
87100024	8/19/88
88010001	8/3/88
88030101	6/27/88
83120053	9/2/86

(b) Title V Permits

EPA issued a final Title V permit (Permit No. V-IL-1716300103-08-01) to Veolia on September 12, 2008, and the permit became effective on October 12, 2008.[2] Prior to issuing the final permit, EPA reviewed historical metal feedrate data supplied by Veolia to support Veolia's proposed operating parameter limits (OPLs) for hazardous air pollutants required by the HWC MACT, 40 C.F.R. Part 63, Subpart EEE. EPA concluded that reliance on the OPLs submitted by Veolia would not assure Veolia's compliance with the applicable requirements in the HWC

[2] Final permit and support documents are available at www.regulations.gov; Docket ID: EPA-R05-OAR-2008-0235

MACT.[3] Specifically, EPA determined that the past data were not reliable for determining feedrate OPLs for mercury (Hg), semivolatile metals (SVM) – lead (Pb) and cadmium (Cd), or low volatile metals (LVM) – arsenic (As), chromium (Cr) and beryllium (Be)).

Based upon EPA's review of Veolia's historical data, on February 22, 2008, EPA issued a Request for Information under Section 114 of the Act, 42 U.S.C. § 7414, requiring Veolia to complete comprehensive performance tests on all three combustion units. The required testing was limited to mercury, low volatile metals and semi-volatile metals.[4] Veolia conducted the comprehensive performance tests in August and September 2008.

Since the test results and the OPLs were not available at the time that EPA made the initial permit available for public comment, EPA provided the opportunity for the public to comment on the compliance schedule, Veolia's performance test plan, and the OPL calculation methodologies. EPA required Veolia to submit the results of its testing and a request for a significant modification to its Title V permit to incorporate OPLs by October 10, 2008.

On October 10, 2008, Veolia submitted to EPA the August and September 2008 test results, and requested a significant modification to its Title V permit to incorporate OPLs. The significant modification application is the subject of the current permitting action.

2.0. PROCESS DESCRIPTION AND EMISSIONS

(A) Process Description

Veolia has three combustion units: Units 2, 3, and 4. Combustion Unit 1 was decommissioned and closed in 1992. Combustion Units 2 and 3 are custom fixed hearth incinerators. Combustion Unit 4 is a rotary kiln incinerator (transportable system converted to a stationary unit). All three combustion units are fed liquid and solid waste streams, although Veolia processes bulk waste only in Combustion Unit 4.

Veolia receives a variety of wastes in containers (drums, roll offs, etc.) and in bulk. These wastes come into the facility predominantly in the form of solids and liquids. Drums are stored in various buildings on the property (including an explosives magazine), depending on the characteristics of the material.

Drummed liquids may be transferred via drum pumps to tank farm #1 or tank farm #3, or may be directly injected into one of the three combustion units. Tank farm #1, which services

[3] *See* Statement of Basis for Permit No. V-IL-1716300103-08-01 at 8 , September 12, 2008 (citing April 16, 2008 memorandum from Charles Hall to the permit file, "Operating Parameter Limits for Veolia ES Technical Solutions, LLC, Sauget, IL."). Available at www.regulations.gov; Docket ID: EPA-R05-OAR-2008-0235.

[4] Veolia explained that it could not meet the deadlines in the February 22, 2008 Request for Information because stack testing crews and materials were not available. Therefore, EPA extended the testing schedule and limited the testing to mercury, low volatile metals and semi-volatile metals. For all other required OPLs, EPA incorporated into the draft Title V permit parameters that EPA calculated based upon data submitted by Veolia. *See* Statement of Basis for Permit No. V-IL-1716300103-08-01, September 12, 2008.

Combustion Units 2 and 3, is made up of ten vertical fixed roof storage tanks. Tank farm #3, which services Combustion Unit 4, is made up of eight vertical fixed roof storage tanks. These storage tanks release fugitive emissions during filling and emptying of the tanks, as well as when the tanks are empty. Emissions from these storage tanks are controlled by an individual carbon adsorption unit on each tank.

Bulk solid wastes are stored in four pits in the bulk feed building. The building is enclosed and equipped with a cyclone, baghouse, and carbon adsorption unit. Veolia's Title V permit requires Veolia to operate the enclosed building under permanent negative pressure. A clam shell moves bulk solids from the bulk feed building through an enclosed gallery to Combustion Unit 4.

Material processing occurs at units MP-1 and MP-2, and the lab pack repack areas. Material processing involves the repackaging of drummed solids into more manageable containers for subsequent incineration. Some of these solids may have free liquids, which are fixed with an inert absorbent material before repackaging. Lab packs are opened and repackaged into acceptable containers for charging to the combustion units.

Each combustion unit has a primary combustion chamber (PCC) and a secondary combustion chamber (SCC). The PCCs and SCCs have natural gas-fired auxiliary burners, which are used during startup, shutdown, malfunctions and additional heat input. Liquid wastes are fed into the combustion units by air atomized injection nozzles. These feeds are made up of wastes with high energy content (high Btu), and aqueous streams, which are fed to the PCCs on all three units. High Btu streams can be fed to the SCCs as well; however, this is done only on Combustion Unit 4. Solid waste is fed in batches to the PCCs by conveyors. Each combustion unit has an air pollution control train consisting of a spray dryer absorber and baghouse. In addition, Combustion Unit 4 has a tempering chamber and activated carbon injection.

The three combustion units are supported by lime handling systems and ash handling systems. The lime handling systems are made up of lime storage silos and slurry mix tanks. There is one system for Combustion Units 2 and 3 and one for Combustion Unit 4. The silos are controlled by bin vents. Ash handling consists of material collection from the combustion chambers, the spray dryer and baghouse. The combustion chamber ash is collected in roll-off boxes. Veolia tarps the roll-off boxes to minimize PM emissions. Veolia continuously monitors each combustion unit for carbon monoxide and hydrogen chloride/chlorine emissions via a continuous emission monitoring system.

Veolia operates small combustion sources comprising a natural gas-fired boiler as well as two emergency generators and a portable Tioga heater.

Veolia also operates a drum crusher. Drums that are unsuitable for reuse are crushed at the drum crusher. Some empty drums may contain residual waste when crushed. These emissions are not controlled.

Fugitive emissions occur facility-wide. The most significant source of fugitive emissions is equipment leaks from pipelines and pumps that handle liquid organic waste. The evaporation of

organics from spills, leaks, and drum sampling also contribute to facility-wide fugitive emissions.

(B) Insignificant Activities

a) 2.5 mmBtu/hr Tioga portable boiler
b) Two emergency generators (<112kW)
c) Ash handling
d) Handling of spent dry scrubber solids
e) Lime unloading and proportioning
f) Gasoline storage and dispensing
g) Use of absorbent material
h) General vehicle maintenance and servicing (assumed to include diesel fuel handling)
i) Laboratory
j) Piping and storage system for natural gas
k) Non-halogenated cold cleaning degreasers
l) Internal combustion engines of motor vehicles
m) Storage and handling of closed drums

3.0. BACKGROUND ON CURRENT PERMITTING ACTIONS

Today's permitting action is a significant modification to Veolia's Title V permit to add feedrate limits for heavy metals. In addition to minor formatting changes, EPA has revised condition 2.1(C)(2) by adding feedrate limits for mercury, semi-volatile metals, and low volatile metals. EPA has also included additional periodic monitoring requirements for the proposed feedrate limits in conditions 2.1(D)(1)(i) and 2.1(D)(4)(d)(2). *See* Section 4.D. for details.

(A) Regulatory Background

The HWC MACT requires subject facilities to develop OPLs either by using existing performance tests or by performing new tests.[5] As allowed by 40 C.F.R. § 63.1207(c)(2), Veolia chose to use previous emissions test data in lieu of the initial comprehensive performance test. As part of its application for the initial Title V permit, Veolia submitted its notice of compliance (NOC), including proposed OPLs, some of which Veolia calculated based upon historical emissions test data. EPA reviewed the data that Veolia used to calculate the OPLs and concluded that reliance on the OPLs submitted by Veolia would not assure Veolia's compliance with the applicable requirements in the HWC MACT.

Hazardous waste combustors generally emit their highest emissions while demonstrating compliance with emission standards during Resource Conservation and Recovery Act (RCRA) compliance testing. For real-time compliance during periods between compliance tests, sources are required to establish and comply with operating parameters that are representative of operating levels achieved during compliance testing. Thus, the emission levels achieved during

[5] *See* 40 C.F.R. § 63.1207.

these compliance tests are typically the highest emission levels a source emits under reasonably anticipatable circumstances.[6]

To ensure that these operating limits do not impede normal day-to-day operations, sources generally take measures to operate during compliance testing under conditions that are at the extreme high end of the range of normal operations. For example, sources often feed ash, metals, and chlorine during compliance testing at substantially higher than normal levels (e.g., by spiking the waste feed) to maximize the feed concentration, and they often detune the air pollution control equipment to establish operating limits on the control equipment that provide operating flexibility.[7]

By designing the compliance test to generate emissions at the extreme high end of the normal range of emissions, sources can establish operating limits that account for variability in operations (e.g., composition and feedrate of feedstreams, as well as variability of pollution control equipment efficiency) and that do not impede normal operations. Thus, the feedrate limit would be based on waste levels fed during the comprehensive performance test unless the regulatory authority approves a request for the source to extrapolate to a higher allowable feedrate (and emission rate) limit.[8]

(B) Pollutants Affected by this Permit Action

The proposed permit action sets feedrate limits for mercury, semi-volatile metals (cadmium and lead), and low-volatile metals (arsenic, beryllium, and chromium). Volatility is a measure of how readily a substance changes from a solid or liquid to a vapor. These pollutants have known negative health effects. EPA is setting feedrate limits in this action that comply with applicable federal regulations. Each of the pollutants affected by this action is described in further detail below.

Mercury is a naturally occurring element (Hg on the periodic table) that is found in air, water and soil. It exists in several forms: elemental or metallic mercury, inorganic mercury compounds, and organic mercury compounds. Elemental or metallic mercury is a shiny, silver-white metal and is liquid at room temperature. If heated, it is a colorless, odorless gas. Exposures to mercury can affect the human nervous system and harm the brain, heart, kidneys, lungs, and immune system.

Cadmium, in its purest form, is a soft silver-white metal found naturally in the earth's crust. Cadmium doesn't have a distinct taste or smell. Breathing high doses of cadmium can irritate and damage the lungs and can cause death. However, the greatest concern is from exposure to lower doses of cadmium over a long period. The lower and long-term exposure to cadmium through air can cause kidney damage. Although the damage is not life threatening, it can lead to the formation of kidney stones and affect the skeleton, which can be painful and debilitating.

[6] 69 Fed. Reg. 21197, 21218, April 20, 2004, HWC MACT Proposed Rule. *See also* 40 C.F.R. §§ 63.1206(b)(2), 63.1207(f)(1) and (g)(1).
[7] 69 Fed. Reg. at 21218.
[8] 69 Fed. Reg. at 21309-10, fn. 202 & 204.

Lung damage has also been observed. The U.S. Department of Health and Human Services has classified cadmium and certain cadmium compounds as probable or suspected carcinogens (substances that cause cancer).

Lead is a naturally occurring metal found in small amounts in rock and soil. Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. Once taken into the body, lead distributes throughout the body in the blood and is accumulated in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system. Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits and lowered IQ.

Arsenic is a naturally occurring element widely distributed in the earth's crust. Inorganic forms of arsenic are found throughout the environment; it is released into the air by volcanoes, the weathering of arsenic-containing minerals and ores, and by commercial or industrial processes. Short-term high-level inhalation exposure to arsenic dust or fumes can cause nausea, diarrhea, abdominal pain and nervous system disorders. Long-term inhalation exposure to inorganic arsenic can cause irritation of the skin and mucous membranes and lung cancer.

Beryllium is an inorganic metallic element in the periodic table. Because it is an element, it does not degrade nor can it be destroyed. Compounds of beryllium are either white or colorless and do not have a particular smell. Short-term inhalation exposure to high levels of beryllium has been observed to cause irritation and swelling of the lungs; after exposure ends, these symptoms may be reversible. Long-term inhalation exposure of humans to beryllium has been reported to cause chronic beryllium disease, in which noncancerous lesions develop in the lung. Human epidemiology studies are limited, but suggest a causal relationship between beryllium exposure and an increased risk of lung cancer.

Chromium occurs naturally in rocks, animals, plants, and soil. It can exist in several different forms. Depending on the form it takes, it can be a liquid, solid, or gas. The form of chromium of most concern from a health perspective is chromium (VI), also called hexavalent chromium. Inhalation of hexavalent chromium at high levels can damage the respiratory system and cause cancer. Exposure to chromium occurs from ingesting contaminated food or drinking water or breathing contaminated air. It is odorless and tasteless. Air emissions of chromium are predominantly of chromium (III), an essential nutrient that helps the body use sugar, protein, and fat and in the form of small particles or aerosols.

(C) Extrapolation of Performance Test Feedrates

40 C.F.R. § 63.1209(l)(1)(v) and (n)(2)(vii) allows each facility to include as part of the performance test plan required under 40 C.F.R. §§ 63.7(b) and (c) and 63.1207(e) and (f) a request to use the mercury, SVM and LVM feedrates and associated emission rates during the comprehensive performance test to extrapolate to higher allowable feedrate limits and emission rates, subject to a number of statutory and policy provisions.[9] EPA has previously provided the

[9]*See also* 64 Fed. Reg. 52827, 52946-47, September 30, 1999; 40 C.F.R. § 63.1209(l)(1)(v) and (n)(2)(vii).

following guidance on extrapolation of performance test feedrate levels to calculate metal feedrate limits:[10]

> Extrapolation can be advantageous because it avoids much of the spiking that sources normally undertake during compliance testing and the associated costs, risks to operating and testing personnel, and environmental loading from emissions. Under an approved extrapolation approach, you would be required to feed metals at no less than normal rates to narrow the amount of extrapolation requested. Further, we expect that some spiking would be desired to increase confidence in the measured, performance test feedrate levels that will be used to project feedrate limits (i.e., the errors associated with sampling and analyzing heterogeneous feedstreams can be minimized by spiking known quantities).
>
> Extrapolation approaches that request feedrate limits that are significantly higher than the historical range of feedrates should not be approved. Extrapolated feedrate limits should be limited to levels within the range of the highest historical feedrates for the source. We are taking this policy position to avoid creating an incentive to burn wastes with higher than historical levels of metals. Metals are not destroyed by combustion but rather are emitted as a fraction of the amount fed to the combustor. If [a source wants to] burn wastes with higher than historical levels of metals, [the source] must incur the costs and address the hazards to plant personnel and testing crews associated with spiking metals into [the] feedstreams during comprehensive performance testing.

(D) Application Review Timeline

On October 10, 2008, Veolia submitted a request for a significant modification to its Title V permit to incorporate feedrate limits (i.e., OPLs). Veolia requested that EPA estimate metal feedrate limits by extrapolating the results of tests performed in August and September 2008 to higher metal feedrates, pursuant to 40 C.F.R. § 63.1209(l)(1)(v) and (n)(2)(vii), and to incorporate the extrapolated OPLs into the Title V permit. Veolia applied for feedrate limits that were 7 to 10 times higher than the 2008 comprehensive tests feedrates.

EPA denied Veolia's requested extrapolation in a letter dated July 17, 2009. EPA denied Veolia's request because: 1) Veolia did not consistently conduct its performance tests at the "extreme range of normal"; therefore, EPA could not reliably conclude that Veolia would have equal system removal efficiencies at the requested feedrate limits; 2) EPA believed that extrapolation of mercury feedrates for Unit 4 is not appropriate since the tests did not provide sufficient data to understand the relationship between the necessary amount of activated carbon needed to maintain the calculated system removal efficiency and different mercury feedrates; and 3) EPA had a number of concerns with the 2008 comprehensive test procedures.

On March 2, 2010, Veolia submitted a revised application for a significant modification of its Title V permit, including a revised request to extrapolate metal feedrates. In the application, Veolia requested feedrate limits that are about three times higher than the 2008 comprehensive

[10] 64 Fed. Reg. at 52946-47.

tests feedrates. Veolia submitted additional supporting data on historical metal feedrates on March 12 and June 7, 2012. A table showing relevant dates is provided below.

Table 1. Summary of Application Review Timeline.

Relevant Dates	Activity
October 10, 2008	Veolia submits its initial significant modification application requesting extrapolated feedrates for metals.
December 5 & 10, 2008	Veolia submits to Charles Hall, EPA, by electronic mail, the highest historical 12-hour rolling feedrate data for mercury, low volatile metals and semi-volatile metals.
January 7, 2009	Veolia submits a revised significant modification application, dated January 6, 2009, which revises feedrate calculations to account for the moisture content of the solid waste fed.
January 22, 2009	EPA requests additional information.
March 27, 2009	In response to EPA's request for additional information, Veolia submits laboratory reports for the 2008 performance tests.
July 17, 2009	EPA denies Veolia's request for extrapolation, included in the significant modification application.
March 2, 2010	Veolia submits a revised significant modification application, dated February 25, 2010, which revises moisture content calculations, historical feedrates, and the requested feedrate limits.
March 8, 2012	EPA informs Veolia, by conference call, that it does not intend to approve the significant modification application as proposed, and requests Veolia to submit additional information by April 13, 2012.[11]
March 27, 2012	Veolia states in an e-mail message to David Ogulei, EPA, that it will not be revising its extrapolation request.
June 7, 2012	Veolia re-submits historical metal feedrate data, at the request of EPA.
[Date]	EPA denies Veolia's significant modification application for extrapolated feedrates and issues a draft revised Title V permit to Veolia.

[11] David Ogulei, EPA Region 5, sent Doug Harris, Veolia, meeting notes and a schedule for Veolia to submit additional information to by email on March 12, 2012.

4.0. UNIT-SPECIFIC CONDITIONS

(A) Applicable Requirements

The Title V permit details the requirements applicable to Veolia, including the HWC MACT requirements. A chart detailing all applicable requirements for each of the emission units was provided on Pages 5 and 6 of the Statement of Basis for the initial permit, dated September 12, 2008.[12]

No new requirements have become applicable to the source since the last permit was issued.

(B) HWC MACT OPLs

EPA has reviewed Veolia's significant modification application and determined that the extrapolated feedrate limits requested by Veolia are not approvable. For the reasons provided below, EPA has determined that the requested feedrate limits are unacceptable under the HWC MACT; therefore, we are concurrently denying Veolia's proposed feedrate limits and incorporating into the draft revised Title V permit feedrate limits which EPA considers to be supported by the available test data. In addition, EPA has based the mercury feedrate limits on the mercury spike concentrations calculated using the minimum purity of the original spike material instead of the mercury spike concentrations calculated by Veolia's contractor, Maxxam Analytics, Inc.[13]

Table 2 provides a summary of EPA's proposed feedrate limits. Table 2 also compares Veolia's proposed OPLs to the limits EPA has incorporated into Veolia's draft permit. The feedrate limits are based on historical feedrate data provided to EPA by Veolia on June 7, 2012 (Table 3), and comprehensive performance test data conducted by Veolia in August and September, 2008.

[12] Final permit and support documents are available at www.regulations.gov; Docket ID: EPA-R05-OAR-2008-0235
[13] In its laboratory report, Maxxam warned that its mercury spike results should be "viewed with discretion" due to the presence of uncertainty in the laboratory measurements. Our review of Veolia's mercury spike preparation methodology and data shows that an estimate of spike mercury concentration based on Veolia's spike preparation and procedures, including equipment specifications and interviews with Veolia personnel, most accurately represents the spike concentrations used in the 2008 test burns.

Table 2. Proposed Metal Feed Rate Operating Parameter Limits.

Unit	Metal	Average Metal Feedrate During 2008 Testing (lb/hr)[a]	Was Testing Done at ≥ Median 12-hr Historical Rate? [b]	Veolia's Proposed Feedrate Limits (lb/hr)	EPA's Proposed Feedrate Limits (lb/hr)	Estimated Stack Conc. Assuming Veolia's Proposed Limits (µg/dscm @ 7% O_2) [c]	Estimated Stack Conc. Assuming EPA's Proposed Limits (µg/dscm @ 7% O_2) [c]	HWC MACT Limit (µg/dscm @ 7% O_2)[d]
2	Mercury	0.00165	Yes	0.0057	0.0017	183	53	130
	LVM	47.2	Yes	140	68.5	20	10	92
	SVM	63.6	Yes	189	91.0	65	31	230
3	Mercury	0.0018	Yes	0.0057	0.0018	181	57	130
	LVM	47.7	Yes	143	77.8	70	38	92
	SVM	64.3	Yes	193	81.6	173	73	230
4	Mercury	0.0214	Yes	0.078	0.021	89	24	130
	LVM	50.3	Yes	151	77.3	30	15	92
	SVM	63.6	Yes	191	98.1	81	42	230

a. Mercury feedrates were calculated by EPA using calculated mercury spike composition and offsite waste feed concentrations provided by Veolia's laboratory contractor (Maxxam).
b. Median historical feedrate was calculated by EPA from data provided by Veolia on June 7, 2012.
c. Stack concentrations are estimated from exhaust parameters and "removal efficiencies" reported by Veolia in its application, except that mercury removal efficiencies were recalculated by EPA. The µg/dscm calculation is a linear estimate and should only be used to generally compare the recommended limits with the HWC MACT emission limitations. Red-colored values are greater than the MACT limit.
d. HWC MACT limits are found in 40 C.F.R. § 63.1219.

Table 3. Summary of Historical Metal Feedrate Data Submitted By Veolia (12-hour Rolling Average Feedrates).

Unit #	Metal	Date Range Considered	Minimum (lb/hr)	Median (lb/hr)	Average (lb/hr)	Maximum (lb/hr)
2	Mercury	7/1/04-5/31/09	0	0.0000065	0.00027	0.0064
	LVM	1/2/05-12/31/08	0	0.116	0.859	68.5
	SVM	1/2/05-12/31/08	0	0.078	0.832	91.0
3	Mercury	7/1/04-5/31/09	0	0.0000065	0.00025	0.0059
	LVM	1/2/05-12/31/08	0	0.140	0.993	77.8
	SVM	1/2/05-12/31/08	0	0.0582	0.829	81.6
4	Mercury	7/1/04-5/31/09	0	0.0034	0.0087	0.060
	LVM	1/2/05-12/31/08	0	1.66	2.79	77.3
	SVM	1/2/05-12/31/08	0	1.13	2.63	98.1

Following is a discussion of how EPA calculated the feedrate limits shown in Table 2.

a) Mercury

Based on the available information, EPA does not believe that any extrapolation is appropriate for mercury for several reasons:

i. The requested mercury feedrate limits could result in violation of the applicable mercury MACT limits at Combustion Units 2 and 3. EPA estimates that if the requested mercury feedrate limits are granted, corresponding mercury stack concentrations for Combustion Units 2 and 3 (calculated as approximately 183 and 181 micrograms per dry standard cubic meter @ 7% oxygen (µg/dscm @ 7% O_2)) would exceed the mercury MACT limit of 130 µg/dscm @ 7% O_2.

ii. For Combustion Unit 4, which uses an activated carbon injection system to control mercury emissions, Veolia has not provided sufficient data to understand the relationship between the necessary amount of activated carbon needed to maintain the calculated system removal efficiency at different mercury feedrates.

iii. Mercury was spiked as part of the comprehensive performance test.[14] The intended purpose of metal spiking when conducting comprehensive tests is to enable a facility to verify compliance with MACT limits under worst-case conditions.[15] To protect workers EPA does not encourage unnecessary spiking of metals during comprehensive tests. Therefore, if a facility spikes metals when conducting comprehensive tests, the metal spike rates and the native mercury content of the waste should be used to set the feedrate limit with little or no extrapolation, provided the corresponding stack emissions assure compliance with all MACT limits with an ample margin of safety.

Therefore, we are proposing to deny Veolia's extrapolated feedrate limits for mercury. At the same time, EPA has determined that, because Veolia's current Title V permit does not include OPLs for mercury, it does not assure compliance with the limitations at 40 C.F.R. §63.1219. Thus, we are proposing to reopen Veolia's permit pursuant to 40 C.F.R. §71.7(f)(iv) to incorporate as mercury feedrate limits the feedrates at which Veolia conducted its 2008 testing.

b) SVM and LVM

In a June 2008 letter to Veolia,[16] EPA stated, "[i]n order to conduct performance tests under operating conditions that represent the extreme range of normal conditions - as 40 C.F.R. §§ 63.7(e)(1) and 63.1207(g) require – Veolia must feed each metal group (i.e., Mercury, LVM, and SVM) at no less than the highest 12-hour rolling average during the previous 5 years". However, Veolia did not consistently feed metals at rates that are representative of the extreme range of normal conditions, as required by 40 C.F.R. §§ 63.7(e)(1) and 63.1207(g). While Veolia claims that their test feedrates are within the range of their historical feedrates, they are requesting

[14] For the 2008 test burns, Veolia spiked lead nitrate, chromic acid, mercury nitrate, and hexachloroethane.
[15] 69 Fed. Reg. at 21218
[16] George Czerniak, Chief, Air Enforcement & Compliance Assurance Branch, EPA Region 5, to Douglas Harris, General Manager, Veolia ES Technical Solutions, L.L.C., June 12, 2008.

extrapolation to feedrate limits that significantly exceed their highest historical feedrates. Some of the requested feedrate limits for LVM and SVM are more than twice the highest reported historical feedrates for these metals. *See* Tables 3 and 4. EPA's policy is not to grant applications for feedrate limits that are significantly higher than the reported historical metal feedrates.[17]

According to Veolia, EPA previously indicated to Veolia that the level of extrapolation which Veolia requested in its March 2, 2010 application "would more likely be approved" by EPA. *See* e-mail from Doug Harris, Veolia, to David Ogulei, EPA, on March 27, 2012. Although EPA has previously approved extrapolations of up to 3 times the test feedrates for some facilities, those approvals have been based upon source-specific considerations. We believe that source-specific circumstances at Veolia, including the issues discussed above and Veolia's location in an environmental justice (EJ) area, support EPA's proposed decision to deny the application.

Because the feedrate limits proposed by Veolia are significantly higher than the historical normal metal feedrates for the source, we are proposing to deny Veolia's proposed feedrate limits for SVM and LVM. At the same time, EPA has determined that, because Veolia's current Title V permit does not include OPLs for SVM and LVM, it does not assure compliance with the standards at 40 C.F.R. §63.1219. Thus, we are proposing to reopen Veolia's permit pursuant to 40 C.F.R. §71.7(f)(iv) to incorporate SVM and LVM feedrate limits, which EPA considers to be supported by the available test data. EPA calculated the LVM and SVM feedrate limits as follows:

i. If the feedrate during the 2008 comprehensive performance tests was higher than the highest historical 12-hour rolling average feedrate, we used the performance test feedrate as the proposed feedrate limit;

ii. If the feedrate during the 2008 comprehensive performance tests was less than the highest historical 12-hour rolling average feedrate, but it was greater than the median historical 12-hour rolling average feedrate, we used the highest historical 12-hour rolling average feedrate as the proposed feedrate limit;[18]

[17] 62 Fed. Reg. 24211, 24238, Fn 51, explains that EPA does not want sources to extrapolate to allowable feedrates that are significantly higher than their historical range of feedrates ("… i.e., extrapolated feedrates should be limited close to the historical levels that a source actually fed."). 64 Fed. Reg. 52947 adds that EPA took this policy position "to avoid creating an incentive to burn wastes with higher than historical levels of metals." Additionally, facilities that want to burn wastes with higher than historical levels of metals could do so through spiking of metals during comprehensive performance testing, but they "must incur the costs and address the hazards to plant personnel and testing crews associated with spiking metals into [their] feed streams." *Id*. *See also* 64 Fed. Reg. at 52946.

[18] Veolia spiked Pb and Cr during the 2008 comprehensive tests, but did not spike As, Be, or Cd. Pb is a semivolatile metal (SVM) while Cr is a low volatile metal (SVM). We believe a limited amount of extrapolation up to the highest historical 12-hour rolling average feedrate is justifiable in this case because only a fraction of SVM was spiked (Cd was not spiked), and only a fraction of LVM was spiked (As and Be were not spiked).

iii. If the feedrate during the 2008 comprehensive performance tests was less than the median historical 12-hour rolling average feedrate, we used the median historical 12-hour rolling average feedrate as the proposed feedrate limit.[19]

(C) Non-Applicability Determinations

40 C.F.R. § 71.6(f)(1)(ii) provides that a permitting authority "may expressly include in a part 71 permit a provision stating that compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that: … [t]he permitting authority, in acting on the permit application … determines in writing that … requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof." Conditions 2.1(B), 2.2(B), 2.3(B), 2.4(B), 2.5(B), 2.6(B), 2.7(B), and 2.8(B) of the Part 71 permit each describe federal regulations or portions of the Illinois SIP that EPA has determined do not apply to this facility. All of the determinations made in the above listed conditions of the permit, which are based on each rule's applicability criteria, not the source's potential to emit, or other artificially imposed limits, are described specifically in the permit.

No additional non-applicability determinations have been made with the current permitting action.

(D) Periodic Monitoring

(a) Proposed Requirements

Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), 40 C.F.R. § 71.6(a)(3)(i)(B) requires that each permit contain "periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit.... Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Recordkeeping provisions may be sufficient to meet [these monitoring] requirements...." The initial permit established periodic monitoring in the following conditions: 2.2(D)(12); 2.2(E)(2); 2.2(E)(3); 2.3(D); 2.3(E)(2); 2.4(D)(4); 2.4(D)(6); 2.5(D)(3); 2.5(D)(6); 2.6(D)(1); and 2.7(D)(1).

Under the HWC MACT, each subject facility must conduct comprehensive performance tests to establish metal feedrate limits, and must analyze its feedstream prior to feeding the material into the incinerator and document the amount of mercury, low volatile metals (arsenic, beryllium, chromium) and semi-volatile metals (lead and cadmium) in each feedstream. The facility must either comply with the feedrate limits or it may petition EPA to install and operate continuous emission monitoring systems (CEMS) to directly measure emissions and document compliance with the MACT limits. 40 C.F.R. § 63.1209(c) requires that a subject facility have a feedstream

[19] As shown in Tables 3 and 4, all of the LVM and SVM test feedrates were higher than the respective median historical 12-hour rolling average federates.

analysis plan (FAP) "that is sufficient to document compliance with the applicable feedrate limits." The plan must be submitted to EPA on request.

EPA has reviewed Veolia's FAP and determined that it is necessary to supplement the mercury, LVM and SVM analysis procedures contained in the FAP in order to assure compliance with HWC MACT limits and the proposed feedrate limits. To address the identified deficiencies in Veolia's FAP, and assure compliance with the operating parameter limits, EPA has specified mercury, LVM and SVM analysis procedures in the permit. Additionally, as further discussed below, we are proposing that Veolia install and operate a multi-metals continuous emissions monitoring system (CEMS) on Combustion Unit 3 for a period of at least 12 months. The temporary use of the CEMS in conjunction with compliance with the OPLs, the feedstream analysis plan, and the supplements to the plan included in the permit will assure that the OPLs established in the permit are adequate to assure compliance with the metals emissions limits in the MACT.

The proposed feedstream analysis procedures, which are found in conditions 2.1(D)(1)(i) and 2.1(D)(4)(d)(2), supplement any other mercury, LVM and SVM analysis procedures specified in Veolia's FAP and supersede any less stringent provisions in the FAP. Incorporation of these requirements into the Title V permit does not eliminate Veolia's obligation to maintain an adequate FAP, consistent with 40 C.F.R. § 63.1209(c); rather, we are specifying minimum feedstream analysis procedures to assure compliance with the applicable HWC MACT limits.

(b) Advantages of Using Multi-Metals CEMS

Generally, feedstream analysis poses several challenges including the uncertainty associated with 1) measurement of extremely low metal concentrations in the feedstream (i.e., concentrations at or near the detection limit of the measurement device); 2) heterogeneity of the hazardous waste, which may lead to a non-representative sample and hence an inaccurate estimate of the metal feed concentration; 3) inability to demonstrate continuous compliance with MACT limits, as required by the HWC MACT, since there is generally a considerable time lag time between sampling and analysis.

The uncertainties caused by feedstream analysis are largely solved when an EPA-approved CEMS is used to directly measure emissions. First, unlike feedstream analysis, CEMS monitor emissions continuously or semi-continuously.[20] The use of CEMS is the most direct means of ensuring compliance with emissions limits, which helps protect public health and the environment. Generally, EPA considers other options for monitoring compliance when CEMS are not available or when we determine that requiring CEMS is unnecessary or unreasonable. For example, the HWC MACT does not mandate the use of CEMS to document compliance with

[20] Depending on the sampling and analytical technique used by the CEMS, a brief time lag typically exists between measurements due to the amount of time needed to collect and analyze each sample and to conduct quality assurance checks. For example, in the Xact™ multi-metals CEMS (Cooper Environmental Services, LLC, Portland, Oregon), sampling and analysis occurs simultaneously within the instrument except for the time required to advance the tape (about 20 seconds) and the time required for automated quality assurance checks. *See* Xact™ 640 Multi-Metal Continuous Emissions Monitoring System. Specification Data Sheet. Available at: http://static.pall.com/pdfs/OEM-Media-Membranes-and-Materials/PGXACT640EN.pdf.

the HWC MACT limits for mercury, LVM, SVM, or chlorine based in part on EPA's determination that performance specifications for mercury or multi-metals CEMS were not yet available at the time of finalization of that rule. However, pursuant to 40 C.F.R. § 63.1209(a)(1)(i), the source must use either a carbon monoxide or hydrocarbon CEMS to demonstrate and monitor compliance with the carbon monoxide and hydrocarbon standard, and an oxygen CEMS to continuously correct the carbon monoxide or hydrocarbon level to 7 percent oxygen. For PM, pursuant to 40 C.F.R. § 63.1209(a)(1)(iii), the source must install, calibrate, maintain, and operate a PM CEMS to demonstrate and monitor compliance with the PM standards at such time that the Agency promulgates all performance specifications and operational requirements applicable to PM CEMS. Under 40 C.F.R. § 63.1209(a)(5), the source may petition the Administrator to use CEMS for compliance monitoring for PM, mercury, semivolatile metals, low volatile metals, and hydrogen chloride and chlorine gas under 40 C.F.R. § 63.8(f) in lieu of compliance with the corresponding operating parameter limits.

Second, modern multi-metals CEMS have been shown to be more accurate and reliable than feedstream analysis for monitoring mercury and other hazardous metal emissions from combustion of heterogeneous feedstreams. Without a CEMS most emission excursions from combustion of such heterogeneous feedstreams would go undetected. A CEMS could alleviate this concern by giving the facility instantaneous data, thus enabling it to make changes that compensate for the increased metals in the feedstream before emissions become excessive.[21] Although a momentary exceedance of the emission limit would not be expected to immediately affect the 12-hour rolling average used for demonstrating compliance, the facility operator could rely on the instantaneous data to initiate various corrective actions before there is a compliance or safety problem. Instantaneous data typically gives a facility plenty of time to optimize performance before employee or public safety is threatened.

Third, the use of CEMS has the potential to enable the facility to increase waste feedrates by directly monitoring emissions and showing that the MACT limits are not exceeded at higher feedrates. This could be attractive to a facility that wants flexibility in feedrates to account for expected or unplanned variability in waste profiles.

(c) Availability of Multi-Metals CEMS

Multi-metals CEMS are commercially available and have been demonstrated to be reliable for measuring mercury and other metal emissions from hazardous waste combustors. Multi-metals CEMS measure the amount of mercury and a number of other trace metals, thus the installation of a multi-metals CEMS eliminates the need for a mercury CEMS. Unlike mercury CEMS, which measure only mercury emissions, a multi-metals CEMS enables a facility such as Veolia to directly measure the actual stack concentrations of a number of HAP metals in the homogeneous exhaust gas stream instead of sampling and analyzing a fraction of the heterogeneous waste being fed to the incinerator. Because the multi-metals CEMS provides real-time data, Veolia can determine its compliance with MACT limits in near real time and

[21] French, N.B., and Priebe, S.J. (1999). Implementing Mercury CEMS in DOE Mixed Waste Treatment Systems. Presented at the WM'99 Conference, February 28 - March 4, 1999. Available at http://www.wmsym.org/archives/1999/32/32-6.pdf (accessed October 16, 2012).

make prompt adjustments to process parameters (temperature, oxygen, feed rate, etc.) to minimize emissions.

EPA has approved the use of multi-metals CEMS as alternative monitoring methodologies at hazardous waste combustors. EPA has performed side-by-side evaluations of multi-metals CEMS with EPA Method 29 of Appendix A–8 to 40 C.F.R. Part 60 at industrial waste incinerators and found good correlation between the two methods. 75 Fed. Reg. 31962 (June 4, 2010). In addition, performance specifications and quality assurance (QA) procedures are now available for both mercury and multi-metals CEMS.[22] EPA has published performance specifications and QA procedures for multi-metal CEMS as OTM 16 (Specifications and Test Procedures for X-ray Fluorescence Based Multi-Metals Continuous Emission Monitoring Systems at Stationary Sources) and OTM 20 (Quality Assurance Requirements for X-Ray-Fluorescence Based Multi-Metals Continuous Emission Monitoring Systems at Stationary Sources).[23] Moreover, multi-metals CEMS are an accepted option for metals emission compliance in the recently promulgated mercury and air toxics (MATS) rule. 77 Fed. Reg. 9303 (February 16, 2012). Therefore, the multi-metals CEMS has been proven to be reliable for measuring actual emissions of HAP metals from a hazardous waste combustor such as Veolia.

EPA recently evaluated, at several facilities, a commercial version of a multi-metals CEMS capable of measuring up to twenty or more hazardous air pollutant (HAP) metals in real time. The Xact™ multi-metals CEMS was developed by Cooper Environmental Services, LLC (10180 SW Nimbus Avenue, Suite J6, Portland, Portland, Oregon 97223) and is now being marketed by Pall Corporation (25 Harbor Park Drive, Port Washington, New York 11050). The system uses reel-to-reel (RTR) filter tape sampling technology followed by X-ray fluorescence (XRF) analysis of metals in the deposit. The process begins when an isokinetic sub-sample of stack gas is taken from the stilling chamber and drawn through a chemically-reactive filter tape. Vapor phase metals, including Hg, are deposited on the reactive filter tape along with the particulate matter. The resulting deposit is then automatically advanced and analyzed by XRF for selected metals while the next sample is being collected. The XRF sample analysis technique does not destroy the sample, which allows for possible sample archiving and re-analysis at a later time.[24, 25] The Xact™ multi-metals CEMS can measure up to 20 or more metals simultaneously

[22] Performance Specification 10 (for multi-metals CEMS) and Performance Specification 12 for mercury CEMS were proposed in 1996 in conjunction with the original Hazardous Waste Combustor MACT. However, because the multi-metals and mercury CEMS measurement technologies had not been fully developed and demonstrated, neither performance specification was promulgated. Between 2003 and 2005, Performance Specification 12A for mercury CEMS was proposed and promulgated in conjunction with the Clean Air Mercury Rule (CAMR) after extensive demonstration of mercury CEMS and identification of appropriate performance parameters. In 2007, CAMR was vacated by the DC Circuit Court, which called into question the legality of using Performance Specification 12A. It has since been re-proposed in conjunction with amendments to the Portland Cement NESHAP. *See* http://www.epa.gov/ttn/emc/monitor.html#metals

[23] *See* http://www.epa.gov/ttn/emc/prelim/otm16.pdf and http://www.epa.gov/ttn/emc/prelim/otm20.pdf.

[24] Hay, K.J., Johnsen, B.E., and Cooper, J.A. (2005). X-Ray Fluorescence-Based Multi-Metal Continuous Emission Monitor: Development. Final Report ERDC/CERL TR-05-3, January 2005. Available at: http://www.dtic.mil/dtic/tr/fulltext/u2/a430237.pdf (accessed October 16, 2012).

[25] Yanca, C.A., Barth, D.C., Petterson, K.A., Nakanishi, M.P., Cooper, J.A., Johnsen, B.E., Lambert, R.H., and Bivins, B.G. (2006). Validation of Three New Methods for Determination of Metal Emissions Using a Modified

including arsenic, cadmium, chromium, mercury, and lead.[26] The system reports analytical results every 15 minutes in the units of the MACT standards (µg/dscm). [27]

Cooper Environmental Services has also developed and received EPA approval for a Quantitative Aerosol Generator (QAG), which generates a reference aerosol for calibrating the multi-metals CEMS and for performing relative accuracy test audits (RATAs) of the multi-metals CEMS.[28] Yanca *et al*. evaluated both the Xact™ and the QAG using a modified EPA Method 301 at a hazardous waste combustor by comparing measured and reference aerosol concentrations. The authors found that both the Xact™ and the QAG met the Method 301 validation criteria with precisions and accuracies on the order of 5% over a wide range of concentrations.[29]

In 2006, Eli Lilly and Company received approval from EPA to use a multi-metals CEMS as an alternative to operating parameter monitoring at the Eli Lilly Tippecanoe Laboratories manufacturing facility near Lafayette, Indiana. Eli Lilly successfully installed, certified, and operated, for at least six years, the Xact™ multi-metals CEMS on a 50 mmBtu/hr rotary kiln hazardous (solid and liquid) waste incinerator at the Eli Lilly Tippecanoe Laboratory Facility from 2005 until 2010. Eli Lilly used the Xact™ multi-metals CEMS in conjunction with a PM and hydrochloric acid (HCl) CEMS.[30, 31] Evonik Degussa Corporation purchased the Tippecanoe Laboratory facility in 2010 and continued to operate the multi-metals, PM and HCl CEMS for monitoring compliance with the HWC MACT.

Eli Lilly's stack gases at the Tippecanoe facility averaged approximately 8% moisture content and 140 ^{0}F while the multi-metals CEMS was being operated. However, Pall Corporation has assured EPA that trial tests on their CEMS demonstrate that the unit can operate reliably at moisture contents above 40%.

Environmental Protection Agency Method 301. Journal of the Air & Waste Management Association, 56: 1733-1742.

[26] Lambert, R., and Foster, M. (2011). Eli Lilly's Experience Using a Multi-Metals Continuous Emission Monitoring System. Available at: http://events.awma.org/it32011/presentations/SESSION%2014/14-3%20Lilly's%20Experience%20with%20Using%20the%20Xact%20Multi-Metals%20Monitoring%20System.pdf (accessed October 17, 2012)

[27] Cooper environmental Services reports that the Xact™ multi-metals CEMS can be used at waste incinerators (hazardous, sewage, municipal, medical, industrial), cement kilns, lime kilns, foundries, coal-fired power plants, industrial furnaces and boilers, primary and secondary metal smelters, etc. The unit has been tested at hazardous waste incinerators, coal-fired boilers, wet and dry stacks and 50 ppm acid gases. *See* http://cooperenvironmental.com/wp-content/uploads/2010/11/2010-Xact-640-Presentation-at-the-AWMA-Symposium-on-Air-Quality-Measurement-Methods-and-Technology.pdf (Slide 37). In one test case at a coal-fired power plant, the Xact™ was installed and operating within 2 days.

[28] http://cooperenvironmental.com/wp-content/uploads/2010/01/QAG-820-Data-Sheet.pdf

[29] Yanca et al. (2006).

[30] Lambert, R., and Foster, M. (2011). As part of Eli Lily's experience with the multi-metals CEMS, Eli Lilly in conjunction with EPA prepared a number of technical documents that are now posted on the OAQPS methods web site as Other Test Methods. *See* http://www.epa.gov/ttn/emc/prelim.html

[31] The U.S. Army has also successfully installed and evaluated a multi-metals CEMS on one of its hazardous waste incinerators. Hay *et al*. (2005). EPA also understands that the U.S. Department of Defense has purchased three Xact™ units for use at army munitions incinerators. Finally, multi-metals CEMS are an accepted option for metals emission compliance in the utility mercury and air toxics (MATS) rule that was recently promulgated by EPA.

EPA's Emissions Measurement Center (EMC) located within the Office of Air Quality Planning and Standards (OAQPS) has also recently evaluated the use of the multi-metals CEMS technology for ambient fenceline multi-metals monitoring for compliance determination, ambient health exposure studies, and for locating and evaluating unknown sources of metals emissions. In 2010-2011, EMC deployed the Xact^{TM} 625 fenceline multi-metals monitor at two sites in Ohio in coordination with EPA Region 5, EPA Office of Research and Development (ORD) and Ohio EPA. The Xact^{TM} 625 reports hourly ambient air metals concentrations in near real-time, which allows for faster data acquisition and decision making over conventional filter-based monitoring methods. EPA's Ohio studies show excellent comparability between the Xact^{TM} 625 and conventional, filter-based, metals monitoring methods.

Several additional multi-metals CEMS are under development, including several efforts focused on laser-based atomic emission spectroscopy (AES), microwave AES and spark-based AES.[32] However, EPA is not aware that any of these other technologies are currently commercially available.

(d) Proposed Multi-Metals CEMS Requirements

Veolia's waste streams are heterogeneous (i.e., the composition of the waste is variable within each waste stream). Also, some wastes burned by Veolia have unknown composition because their composition profiles have not been provided by the respective waste generator. In many cases, Veolia relies on waste composition analyses supplied by the individual waste generators but these analyses may not be accurate. Moreover, performance testing that is conducted periodically by Veolia provides only a snapshot of emissions and does not necessarily represent actual emissions performance with respect to all waste streams burned by Veolia throughout the year. The use of a multi-metals CEMS is the only sure way to verify that Veolia's feedstream analysis procedures and the proposed feedrate limits are sufficient to assure continuous compliance with the HWC MACT limits.

To assure compliance with the HWC MACT while operating at or below the permit's feedrate limits, EPA is proposing that Veolia install and operate a multi-metals CEMS on Combustion Unit 3 for a period of at least 12 months. EPA is proposing Combustion Unit 3 because, based on EPA's proposed feedrate limits, EPA estimates that Combustion Unit 3 has the highest potential emissions of mercury, SVM or LVM of any of the combustion units (Table 2).[33]

During the temporary 12-month period, Veolia would continue to monitor feedrate limits using the procedures in their feedstream analysis plan and the enhanced feedstream analysis procedures proposed in the revised permit. In addition, during the 12-month period when the multi-metals CEMS is being operated, Veolia would be required to comply with the feedrate limits for

[32] French, N.B., and Priebe, S.J. (1999)
[33] Unit 3 is nearly identical to Unit 2, by design; therefore, the CEMS data from Unit 3 can be used to deduce the emissions performance of Unit 2 without making significant assumptions. Unit 4 uses an activated carbon injection system to control mercury emissions, which makes it more difficult to extrapolate emissions data from Unit 4 to other uncontrolled units.

mercury, LVM or SVM for Unit 3. This would allow Veolia to demonstrate to EPA that the feedrate limits are sufficiently stringent to assure compliance with the metals emissions limits. At the end of the 12 month period, Veolia could petition EPA to continue to utilize the multi-metals CEMS as the primary means of compliance in lieu of complying with the feedrate limits.

If operation of the multi-metals CEMS reveals that any of the feedrate limits included in Veolia's permit must be made more stringent in order to assure compliance with the applicable emissions limits, EPA would reopen the permit, pursuant to 40 C.F.R. § 71.7(f), to either revise the affected feedrate limits or require permanent operation of the multi-metals CEMS. On the other hand, if operation of the multi-metals CEMS reveals that any of the feedrate limits included in the permit are more stringent than necessary to assure compliance with the applicable emissions limits, Veolia could petition EPA to utilize the results of historical comprehensive performance tests, feedstream analysis, and CEMS data to establish higher feedrate limits for the affected incineration units provided the CEMS data demonstrate that compliance would be assured at the higher feedrate limits regardless of the waste burned.

(E) Streamlining

Pursuant to 40 C.F.R. § 71.6(a)(3)(i)(A), if two or more applicable requirements regulate emissions of the same pollutant from the same emissions unit, EPA may allow a permittee to comply with a streamlined set of monitoring or testing provisions, provided that the specified monitoring or testing is adequate to assure compliance at least to the same extent as the monitoring or testing applicable requirements that are not included in the permit as the result of the streamlining. In the initial permit, EPA streamlined requirements in Conditions 2.1(C)(7)(g) and 2.1(C)(12).

No additional streamlining was performed as part of the current permitting action.

5.0. ENVIRONMENTAL JUSTICE

In 2011, EPA published Plan EJ 2014, EPA's roadmap for integrating environmental justice (EJ) into its programs, policies and activities. Plan EJ 2014 has three objectives: 1) Protect health and the environment in overburdened communities; 2) Empower communities to take action to improve their health and environment; and 3) Establish partnerships with local, state, tribal, and federal governments and organizations to achieve healthy and sustainable communities.[34] One focus area of Plan EJ 2014 is "Considering Environmental Justice in Permitting."[35] EPA's goal is to enable overburdened communities to have full and meaningful access to the permitting process and to develop permits that address EJ issues to the greatest extent practicable under existing environmental laws. Overburdened communities are communities that potentially

[34] *See Plan EJ 2014: Considering Environmental Justice in Permitting – Implementation Plan*. Available at: http://www.epa.gov/compliance/ej/resources/policy/plan-ej-2014/plan-ej-permitting-2011-09.pdf. *See also* "EPA Activities To Promote Environmental Justice in the Permit Application Process", Notice of Availability of Proposed Regional Actions to Promote Public Participation in the Permitting Process and Draft Best Practices for Permit Applicants Seeking EPA-Issued Permits; Request for Comments, 77 Fed. Reg. 38052.
[35] *Id.*

experience disproportionate environmental harms and risk as a result of cumulative impacts or greater vulnerability to environmental hazards.[36]

Veolia is located in an EJ area in East St. Louis and is of significant public interest. Two-thirds of all persons living within three miles of Veolia (65.8%) are minorities, and one-third (32.7%) live below the federal poverty level.[37] Table 4 compares the race distribution in the vicinity of Veolia to the state and national distributions. Figure 1 shows the breakdown of household income within three miles of Veolia, based on 2000 U.S. census data. As shown in Figure 1, about one-half of all households within three miles of Veolia have annual household income of $50,000 or less.

Table 4. Race Distribution Within 3 Miles of Veolia.

Race	Percent of total population within 3 miles	Illinois	U.S.
White	35.1%	73.5%	75.1%
African-American	60.3%	15.0%	12.3%
Asian/ Pacific Islander	1.3%	3.4%	3.7%
American Indian	0.4%	0.2%	0.9%
Other race	0.8%	5.8%	5.5%
Multiracial	2.1%	2.0%	2.4%

*Statistics represent residential population, by 2000 Census Block Group, from EJView: http://epamap14.epa.gov/ejmap/entry.html

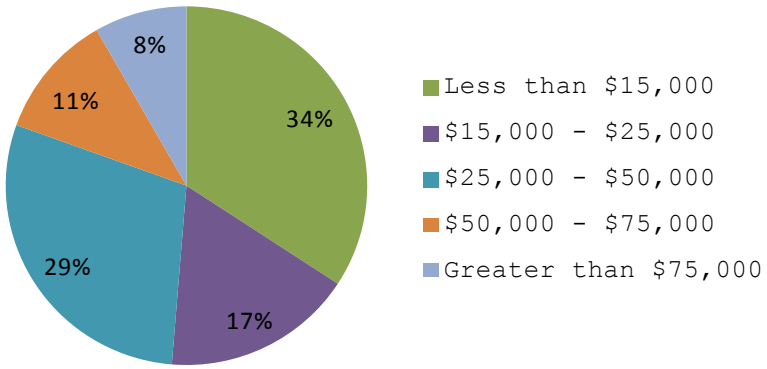

Figure 1. Income of households within 3 miles of Veolia.

[36] 77 Fed. Reg. 38052.
[37] U.S. Census 2000 data, by Block Group. Available through EPA's EJView: http://epamap14.epa.gov/ejmap/entry.html

To assure compliance with the HWC MACT requirements, EPA has proposed permit limits that are lower than the limits proposed by the applicant. EPA's proposed permit limits will protect the air quality around Veolia, which will benefit the entire community.

To ensure compliance with mercury feedrate limits, EPA has included in the Title V permit enhanced monitoring requirements for mercury. The enhanced mercury monitoring requirements are based on site-specific conditions at the Veolia facility and in the surrounding community. Previous site-specific dispersion modeling and risk assessment, conducted by EPA for purposes of RCRA permitting, showed that mercury emissions from the Veolia facility could result in deposition of mercury in and around lakes used for fishing downwind of the facility.[38] The proposed enhanced mercury monitoring requirements will help protect human health and the environment from the consequences of mercury emissions by providing further assurance that the permitted mercury limits will not be exceeded.

Due to the facility's location in an EJ area, EPA believes it is important to provide enhanced public participation opportunities to overburdened communities near Veolia. The specific public participation opportunities for this permitting action are described in a focus sheet accompanying this Statement of Basis (*see* Docket ID EPA-R05-OAR-2012-0649). We believe that more transparency and dialogue can lead to better permit outcomes for the community as well as permit applicants.

[38] A copy of the risk assessment is available at: http://www.epa.state.il.us/public-notices/2008/general-notices.html#veolia